

*MYRIOTROCHUS ANTARCTICUS* SP. NOV. (APODIDA: MYRIOTROCHIDAE),  
A NEW HOLOTHURIAN SPECIES FROM EASTERN ANTARCTICA

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*Myriotrochus antarcticus* sp. nov. from eastern Antarctica is described. *Myriotrochus antarcticus* is the first myriotrochid species to be recorded from the continental shelf in the Southern Hemisphere.

ANTARCTIC benthic invertebrates from the Prydz Bay region were surveyed, during January and February 1993, by the Museum of Victoria in conjunction with the Australian Antarctic Divison. The study region comprised Prydz Bay (70–80°E) and the MacRobertson Shelf (60–70°E), south of the Kerguelen Plateau in eastern Antarctica. One of 36 holothurian species recorded from this survey, was determined to be a new species of *Myriotrochus* and is described herein.

The single specimen is damaged and consists of the anterior part of the body. Although a complete morphological and anatomical description is not possible, the critical taxonomic characters, including the form of the ossicles and the calcareous ring, are present and described and clearly differentiate the new species from others of the genus.

Order APODIDA Brandt, 1835

Family MYRIOTROCHIDAE Théel, 1877

*Myriotrochus antarcticus* sp. nov.

*Myriotrochus* sp. MoV 2039 O'Loughlin et al., 1994: 553, 554.

Fig. 1A–D

**Material examined.** Holotype (anterior part of the body). Eastern Antarctica, western MacRobertson Shelf (66°55.51'S, 62°32.27'E to 66°55.33'S, 62°32.16'E), 113 m, WHOI epibenthic sled, M. O'Loughlin on ANARE RSV *Aurora Australis*, 11 February 1993 (stn AA93-124), Museum of Victoria F69125 (with 1 slide).

**Diagnosis.** Tentacle ossicles absent. Pieces of the ventral part of the calcareous ring not significantly longer than those of the dorsal part; posterior

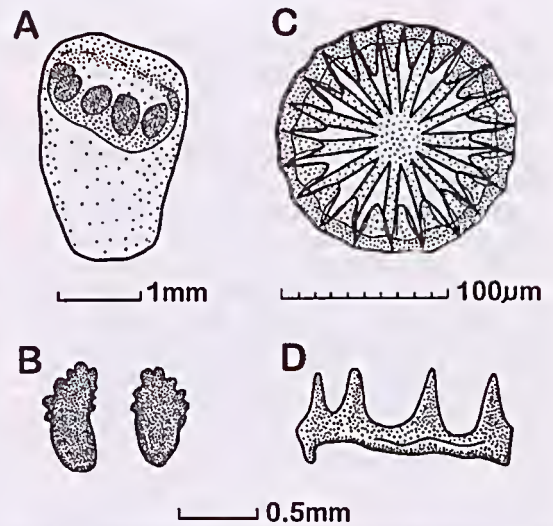


Fig. 1. *Myriotrochus antarcticus*, holotype, F69125. A, anterior part of the body. B, tentacle. C, wheel ossicle from the body wall. D, pieces of the calcareous ring, view through skin.

margin of the calcareous ring slightly undulating, not distinctly concave. Whwcls 140–150 µm in diameter with 15–16 spokes and 22–24 teeth.

**Description.** Holotype: an anterior body fragment, 2 mm long, 1.3 mm in diameter (Fig. 1A). Skin translucent, colour in alcohol greyish-white. Tentacles 12, peltato-digitate, with 8–10 digits (Fig. 1B). Tentacle ossicles absent. Calcareous ring composed of 10 pieces; posterior margin slightly undulating, not distinctly concave; two dorsolateral radial pieces bearing two prominent anterior processes, remaining segments with a

single prominent anterior process (Fig. 1D). Pieces of the ventral part of the calcareous ring not significantly longer than those of the dorsal part. Two wheel ossicles were isolated from the body wall (Fig. 1C); their parameters are outlined in Table 1.

Wheel diameter ( $\mu\text{m}$ )	140	150
Number of spokes	15	16
Number of teeth	22	24
Spokes/teeth (%)	68.2	66.7
Hub diameter/wheel diameter (%)	18.6	18.0
Teeth length/wheel diameter (%)	18.6	18.0

Table 1. Wheel parameters in *Myriotrochus antarcticus*.

*Etymology.* This species is named for the locality from which it was collected, Antarctica.

*Distribution.* The species is known from a single specimen collected from the western MacRobertson Shelf, eastern Antarctica, 113 m.

*Myriotrochus antarcticus* is the first myriotrochid species to be recorded from the shelf in the Southern Hemisphere. All other shelf species of *Myriotrochus* are distributed in the Arctic (*M. eurycyclus*), the Arctic and northern parts of the Atlantic and Pacific (*M. rinkii*) and the northern Pacific (*M. mitsukurii*). In the Southern Hemisphere myriotrochid species have previously been recorded only from bathyal, abyssal and hadal depths (Belyaev & Mironov 1982).

*Remarks.* The genus *Myriotrochus* contains variably sized species. The diameter of the calcareous ring is commonly used as a size characteristic, as many reference specimens are contracted, or present in museum collections as body fragments. Some large species, such as *M. clarkei* or *M. giganteus* reach up to 11 or 12 mm in diameter, however most species are moderately sized and vary from 3–8 mm in diameter. One small species, *M. mitis*, reaches only 0.75–2 mm in diameter. However, size of wheels from the body wall does not necessarily correspond to body size. For example, *M. vitreus* reaches a diameter of 6 mm but average wheel size is less than 100  $\mu\text{m}$ . Thus it is not possible to extrapolate the maximum body size of *M. antarcticus* or determine whether the specimen described herein may be a juvenile or adult specimen.

Below we compare the characteristics of the calcareous ring and body wall ossicles of *M. antarcticus*, with those of all other *Myriotrochus*

species. Wheels of corresponding sizes were compared interspecifically, where differential size data was available. The average wheel parameters *M. antarcticus* differ from those of all known species of the genus.

*General comparison.* *Myriotrochus eurycyclus* Heding, 1935 and *M. mitsukurii* Ohshima, 1915 differ from *M. antarcticus* by the presence of wheels in the tentacles (Heding 1935b; Ohshima 1915). *M. eurycyclus* also differs in the form of the calcareous ring which differs greatly in height in the dorsal and ventral aspects.

*M. bathybius* Clark, 1920 differs by the presence of wheels with a perforated hub, and by the conical and tapering tentacles rather than the peltato-digitate form exhibited by *M. antarcticus* (Clark, 1920).

*M. clarkei* Gage & Billet, 1986 and *M. vitreus* Sars, 1866 differ in the form of the calcareous ring, which differs greatly in height in the dorsal and ventral aspects and has prominent posterior processes, and by the conical and tapering tentacles (Heding 1935a; Gage & Billet 1986). *M. vitreus* also differs in having smaller sized wheels of 55–95  $\mu\text{m}$  (Sars 1877; Östergren 1903). Although wheel diameters of 130–150  $\mu\text{m}$  in *M. clarkei* are similar to those found in *M. antarcticus*, other wheel parameters differ (Gage & Billet 1986).

*M. mitis* Belyaev, 1970, *M. giganteus* Clark, 1920, *M. longissimus* Belyaev, 1970 and *M. macquoriensis* Belyaev & Mironov, 1981 all differ in having less prominent anterior processes on the segments of the calcareous ring. *M. mitis* also differs in the smaller wheels of 85–100  $\mu\text{m}$  (Belyaev 1970). Although wheel diameters of 140–160  $\mu\text{m}$ , in north-east Atlantic specimens *M. giganteus*, are similar to those found in *M. antarcticus*, spokes number 10–13 compared to 15–16 in *M. antarcticus* (Gage & Billet 1986, fig. 12). Similarly, wheel diameters of 120–160  $\mu\text{m}$  in *M. longissimus* overlap the size of those found in *M. antarcticus*, however spokes average 9.9 in *M. longissimus* (Belyaev 1970, fig. 7). *M. macquoriensis* also differs in the form of the wheels which have an undulating margin, and a comparatively smaller wheel hub which averages 14–15% of the wheel diameter in *M. macquorensis* compared to 18.0–18.6% in *M. antarcticus*.

*M. rinkii* Steenstrup, 1851 differs in some wheel parameters (see Belyaev & Mironov, 1982). In *M. rinkii* the wheels range in diameter from 130–280  $\mu\text{m}$ , but average about 200  $\mu\text{m}$ , compared to 140–150  $\mu\text{m}$  in *M. antarcticus*. Hub diameter/wheel diameter ratio ranges from 7–16% with an



average of approximately 11% in *M. rinkii*, compared to 18.0–18.6% in *M. antarcticus*. In addition, the knob of the hub is more clearly distinguished in *M. rinkii* than in *M. antarcticus*.

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